

FINAL DESIGN - BRIDGE SUBMITTALS CHECKLIST

The following listing of design items is intended to serve as a general pre-submittal tool for the consultant's convenience in identifying typical MoDOT bridge and culvert review items at the PS&E stage. When this checklist is used, it is requested that a copy of the "checked" list be included with the submittals to MoDOT to assist in the reduction of review time required. The format for provision of this information is left to the consultant's discretion. (The following format is shown as an example, grouped by related types of information.) **This Checklist identifies submittal information needed in addition to that shown on the Preliminary Submittals Checklist (Fig. VIII-7). Drawings must be size 11" x 17".**

General

- ☐ All outstanding design issues from MoDOT's Preliminary submittals review are addressed in the PS&E submittals.
- ☐ For bridge projects that cross a railroad (or railway company right of way), the review comments of the railway company indicating their acceptance of the final bridge layout with respect to their property are required prior to MoDOT approval of the PS&E bridge submittals.

The Title Sheet

In addition to that information identified in Figure VIII-7 for the Preliminary bridge submittal drawings, the title sheet shall include the following information:

- ☐ The name, address and phone number of utility companies
- ☐ The date of the current drawings
- ☐ A current drawing index
- ☐ Title sheet of the drawings is approved by the LPA (indicated by signature and date)
- ☐ Title sheet of the drawings is signed and sealed by the engineer

General Notes, Estimated Quantities, Foundation and Soil Boring Data

- ☐ General notes should be expanded to address the following, as applicable:
 - ☐ Design specifications
 - ☐ 2002 AASHTO *Standard Specifications for Highway Bridges*, 17th Edition
- ☐ Design loading
 - ☐ Design vehicle loading
 - ☐ Seismic Performance Category and Acceleration Coefficient
 - ☐ Earth pressure
 - ☐ Equivalent fluid pressure
 - ☐ Future wearing surface
 - ☐ Superstructure design for dead/live loads (simple support, non-comp/continuous composite, etc.)
- ☐ Design unit stresses (and Class of concrete, as appropriate)
 - ☐ Substructure
 - ☐ Concrete barrier curb, when applicable
 - ☐ Superstructure (except prestressed girders and concrete barrier curb)
 - ☐ Girders
 - ☐ Reinforcing steel
 - ☐ Piles
 - ☐ Miscellaneous structural carbon steel
- ☐ Bearing pads
- ☐ Joint filler
- ☐ Reinforcing steel clearances

FIG. IX-3-1

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- ___ Construction and Materials specifications
 - ___ *Missouri Standard Specifications for Highway Construction*, **2004** Edition, and current *Supplemental Specification Revisions* (see next item)
 - ___ (If the Missouri Standard Specifications for Highway Construction are superceded by project-specific modifications, the drawing note should reference to the Specifications/Contract Documents package)
 - ___ Acceptance of precast, structural steel and prefabricated members (as indicated in **Section IX** of the LPA Manual under “Specifications and Job Special Provisions”, if not defined in a separate Specifications Package)
- ___ Miscellaneous notes
- ___ Summary of estimated quantities
- ___ Reinforcing steel bar list and bending diagrams
- ___ Pile data table (with provision for addition of as-built pile driving data)
- ___ Design bearing table for footings
- ___ Soil boring log data and elevations of adequate hard rock as obtained from the geotechnical investigation

Plan and Profile Sheets

In addition to plans information identified in Figure VIII-7 for the Preliminary bridge submittal drawings, the PS&E drawings shall include the following information:

- ___ **All drawings are signed and sealed by the engineer**
- ___ Right-of-way requirements
- ___ Property ownership
- ___ Benchmark information
- ___ Indication of the vertical datum
- ___ Location of utilities
- ___ Guardrail layout (and identification of end terminals, as appropriate)
- ___ Construction and final horizontal and vertical clearances (for RR or roadway crossings)
- ___ Pile cut-off elevations
- ___ End Bent layout and reinforcing drawings
- ___ Intermediate Bent layout and reinforcing drawings
- ___ Bearing pad details
- ___ Wing details and reinforcing
- ___ Girder drawings
- ___ Girder camber diagram
- ___ Diaphragm details
- ___ Slab layout and reinforcing
- ___ Slab haunching diagram
- ___ Slab pouring sequence
- ___ Precast/prestressed panels details
- ___ Slab drains
- ___ Barrier railing system layout
 - ___ **“TL” capacity of the barrier railing system is identified on the drawings**
 - ___ Railing description, if available – such as “Modified Kansas Corral Bridge Rail”, etc.
 - ___ Railing dimensions
 - ___ Barrier railing attachment details
 - ___ Barrier railing reinforcing details, as appropriate
 - ___ Railing end terminals or approach guardrail details, when applicable
- ___ For culverts, a plan view showing culvert layout dimensions
- ___ Culvert cross section showing wall, slab and opening dimensions
- ___ Elevation view of culvert showing culvert length, distance to headwalls and flowline elevations
- ___ Culvert reinforcing requirements

FIG. IX-3-2

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- ___ Roadway cross-sections identifying roadway improvement grade elevations, typical section and cut and fill quantities
- ___ Construction staging drawings, as appropriate
- ___ Traffic signal drawings, as appropriate
- ___ Pavement marking and signage, as appropriate

Specifications

- ___ **Cover sheet of the Specifications Package (when provided) is signed and sealed by the engineer**
- ___ Specific reference given to the *Missouri Standard Specifications for Highway Construction*, **2004** Edition, and current *Supplemental Specification Revisions*
- ___ Engineer-modified standard specifications
- ___ Engineer-prepared job special provisions
- ___ Acceptance plan(s) for precast, structural steel and prefabricated members, as applicable (see **Section IX**, “Specifications and Job Special Provisions”)
- ___ **Section IX** “Inspection by MoDOT and FHWA” note included on drawings or in Job Special Provisions
- ___ Any Special Provisions required by the Railway Company, when applicable

Itemized Cost Estimate (Required for all structures)

- ___ Itemized cost estimate provided
- ___ Quantities indicated in the itemized cost estimate are in agreement with tabulated quantities indicated on the drawings.

Structural Inventory and Appraisal Sheet (Required for all structures)

- ___ **All items have been completed in English units and Project Number shown**
- ___ Engineer’s name and PE License Number shown
- ___ Inventory and Operating ratings are in agreement with the Load Rating Summary and calculations

Load Rating Computations and Summary (Required for all structures except as noted below)

- ___ **All load ratings are determined using the Load Factor Method**
- ___ Inventory and Operating ratings are determined for the HS20 vehicle
- ___ Posting load ratings determined for all Missouri standard posting vehicles as follows:
 - ___ H20 (Posting rating is 0.86 x the Operating rating determined for the H20 vehicle)
 - ___ 3S2 (Posting rating is 0.86 x the Operating rating determined for the 3S2 vehicle)
 - ___ **MO5 (when the site is within an urban area “commercial zone” boundary – if the Operating rating for the MO5 vehicle is less than 70T, an S-C3 posting is required)**
- ___ Only the controlling load ratings (for all of the vehicles shown above) are shown on the Load Rating Summary Sheet (the format of this sheet is to be the engineer’s option)
- ___ **The Load Rating Summary Sheet is signed and sealed by the engineer**
- ___ All load ratings shown on the Summary Sheet are in agreement with the load rating computations
- ___ (Load rating comps. are generally not required for proprietary CMP or concrete arch culverts)
- ___ Project Number is indicated on both the load rating computations package and the Load Rating Summary Sheet